chemist has one chance in four of being as competent as a certain pathologist, a result that would not be possible by direct comparison. The various factors which limit the exactness of the method should be kept in mind, but we have at least the beginning of a method which with further effort can be made more accurate. Similar methods can be applied to comparing the value of performance in fields even more diverse than the several sciences.

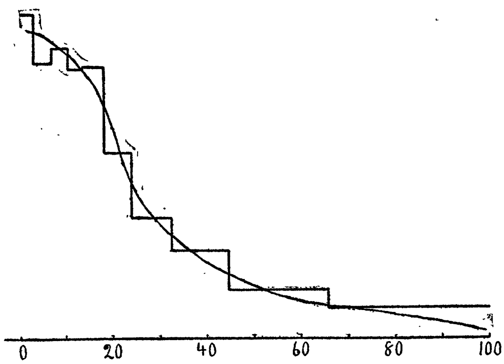

FIG. 2. Distribution of the thousand men of science.

In the accompanying curve—which is based on substantially the same figures as are given in table III., except that a man is given a position only in the science in which he stands the highest—is shown the distribution of the thousand men of science. The 1,000 scientific men are divided into ten groups, the range of eminence or merit covered by each hundred being proportional to the space it occupies on the axis of the abscissas, and the number of each degree of ability being proportional to the ordinates. The range of merit covered by each hundred becomes smaller and there are more of each degree of merit as we pass from the first to the second hundred and so on for the first five hundred, after which the differences become very small. The first hundred men of science cover a range of merit about equal to that of the second and third hundreds together, and this again is very nearly equal to the range covered by the remaining seven hundred. The average differences between the men in the first hundred are about twice as great as between the men in the second and third hundreds, and about seven times as great as between the men in the remaining groups. Or the differences among the first hundred are almost exactly ten times as great as among the last five hundred, who differ but little among themselves. It would be desirable to compare this distribution with that of the normal probability integral and with the salaries paid to scientific men, but the data are not as yet at hand.

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NOTES ON ORGANIC CHEMISTRY.

OPTICALLY ACTIVE COMPOUNDS WHICH CONTAIN NO ASYMMETRIC ATOM.

OPTICAL activity, or the power of causing deviation in the path of a ray of polarized light, is shown by hundreds of organic compounds, all of which contain one or more asymmetric atoms of carbon, nitrogen, sulphur, etc. A carbon atom is asymmetric when it is linked to four, and a nitrogen atom when it is linked to five dissimilar atoms or groups. The only exception to the above connection of asymmetry and optical activity is the compound inosit, which has the formula

$$HOCH < \begin{matrix} CH(OH)CH(OH) \\ CH(OH)CH(OH) \end{matrix} > CHOH$$

and is said to exist in two modifications of opposite activity. Quite recently a second exception has been discovered by W. Marckwald and R. Meth.[1] Their starting point is 1-methylcyclohexanone-(4),

$$(4) \qquad CH_3CH < \begin{matrix} CH_2CH_2 \\ CH_2CH_2 \end{matrix} > CO,$$

from which, by a few simple steps, they obtain the corresponding acetic acid derivative. This is called 1-methylcyclohexylidene-(4)-acetic acid,

$$CH_3CH < \begin{matrix} CH_2CH_2 \\ CH_2CH_2 \end{matrix} > C:CHCOOH.$$

By means of its chinchonine salts this acid is resolved into two new acids of opposite, and practically equal optical activity, just as is the

[1] *Ber. d. Chem. Ges.*, **39**, 2404 (1906).

case with the corresponding tartaric acids, for example.

Should these observations be confirmed it can hardly fail to modify profoundly our conception of the spatial relations and stereochemistry of organic compounds. The authors believe that their new compounds are similar, spatially, to allene (isoallylene) derivatives of the type,

$$ {}^{a}_{b}\!>c:c:c<\!{}^{c}_{d}, $$

which might exist in two forms, each one of which would be the mirror image of the other, as was pointed out by Van't Hoff in his classical work on the spatial relations of the atom.

J. BISHOP TINGLE.

JOHNS HOPKINS UNIVERSITY,
October, 1906.

THE CONVOCATION WEEK MEETINGS OF SCIENTIFIC SOCIETIES.

THE American Association for the Advancement of Science and the national scientific societies named below will meet in New York City during convocation week, beginning on December 27, 1906.

American Association for the Advancement of Science.—December 27–January 1. Retiring president, Professor C. M. Woodward, Washington University, St. Louis, Mo.; president-elect, Professor W. H. Welch, The Johns Hopkins University, Baltimore, Md.; permanent secretary, Dr. L. O. Howard, Cosmos Club, Washington, D. C.; general secretary, Dr. John F. Hayford, U. S. Coast and Geodetic Survey, Washington, D. C.; secretary of the council, President F. W. McNair, Houghton, Mich.

Local Executive Committee.—J. J. Stevenson, chairman, C. C. Adams, Charles Baskerville, Franz Boas, N. L. Britton, H. C. Bumpus, Chas. A. Conant, Simon Flexner, Wm. J. Gies, Wm. Hallock, Alex. C. Humphreys, G. S. Huntington, Edward Kasner, Henry F. Osborn, C. L. Poor, Clifford Richardson, E. B. Wilson, Frederick J. E. Woodbridge, J. McKeen Cattell, secretary.

Section A, Mathematics and Astronomy.—Vice-president, Professor Edward Kasner, Columbia University; secretary, Professor L. G. Weld, University of Iowa, Iowa City, Iowa.

Section B, Physics.—Vice-president, Professor W. C. Sabine, Harvard University; secretary, Professor Dayton C. Miller, Case School of Applied Science, Cleveland, Ohio.

Section C, Chemistry.—Vice-president, Mr. Clifford Richardson, New York City; secretary, Professor Charles L. Parsons, New Hampshire College of Agriculture, Durham, N. H.

Section D, Mechanical Science and Engineering.—Vice-president, Mr. W. R. Warner, Cleveland, O.; secretary, Professor Wm. T. Magruder, Ohio State University, Columbus, Ohio.

Section E, Geology and Geography.—Vice-president, Dr. A. C. Lane, Lansing, Mich.; secretary, Dr. Edmund O. Hovey, American Museum of Natural History, New York, N. Y.

Section F, Zoology.—Vice-president, Professor E. G. Conklin, University of Pennsylvania; secretary, Professor C. Judson Herrick, Denison University, Granville, Ohio.

Section G, Botany.—Vice-president Dr. D. T. MacDougal, Washington, D. C.; secretary, Professor F. E. Lloyd, Desert Botanical Laboratory, Tucson, Arizona.

Section H, Anthropology.—Vice-president, Professor Hugo Münsterberg, Harvard University; secretary, George H. Pepper, American Museum of Natural History.

Section I, Social and Economic Science.—Mr. Chas. A. Conant, New York City; secretary, Dr. J. F. Crowell, Bureau of Statistics, Washington, D. C.

Section K, Physiology and Experimental Medicine.—Vice-president, Dr. Simon Flexner, The Rockefeller Institute for Medical Research; secretary, Dr. Wm. J. Gies, College of Physicians and Surgeons, Columbia University, New York City.

The American Society of Naturalists.—December 28. President, Professor William James, Harvard University; secretary, Professor W. E. Castle, Harvard University.

The Astronomical and Astrophysical Society of America.—December 28. President, Professor E. C. Pickering, Harvard College Observatory; secretary, Professor Geo. C. Comstock, Washburn Observatory, Madison, Wis.

The American Physical Society.—President, Professor Carl Barus, Brown University; secretary, Professor Ernest Merritt, Cornell University, Ithaca, N. Y.

The American Mathematical Society.—December 28, 29. President, Professor W. F. Osgood, Harvard University; secretary, Professor F. N. Cole, Columbia University.

The American Chemical Society.—December 27–January 2. President, Professor W. F. Hillebrand, U. S. Geological Survey; secretary, Dr. William A. Noyes, the Bureau of Standards, Washington, D. C.